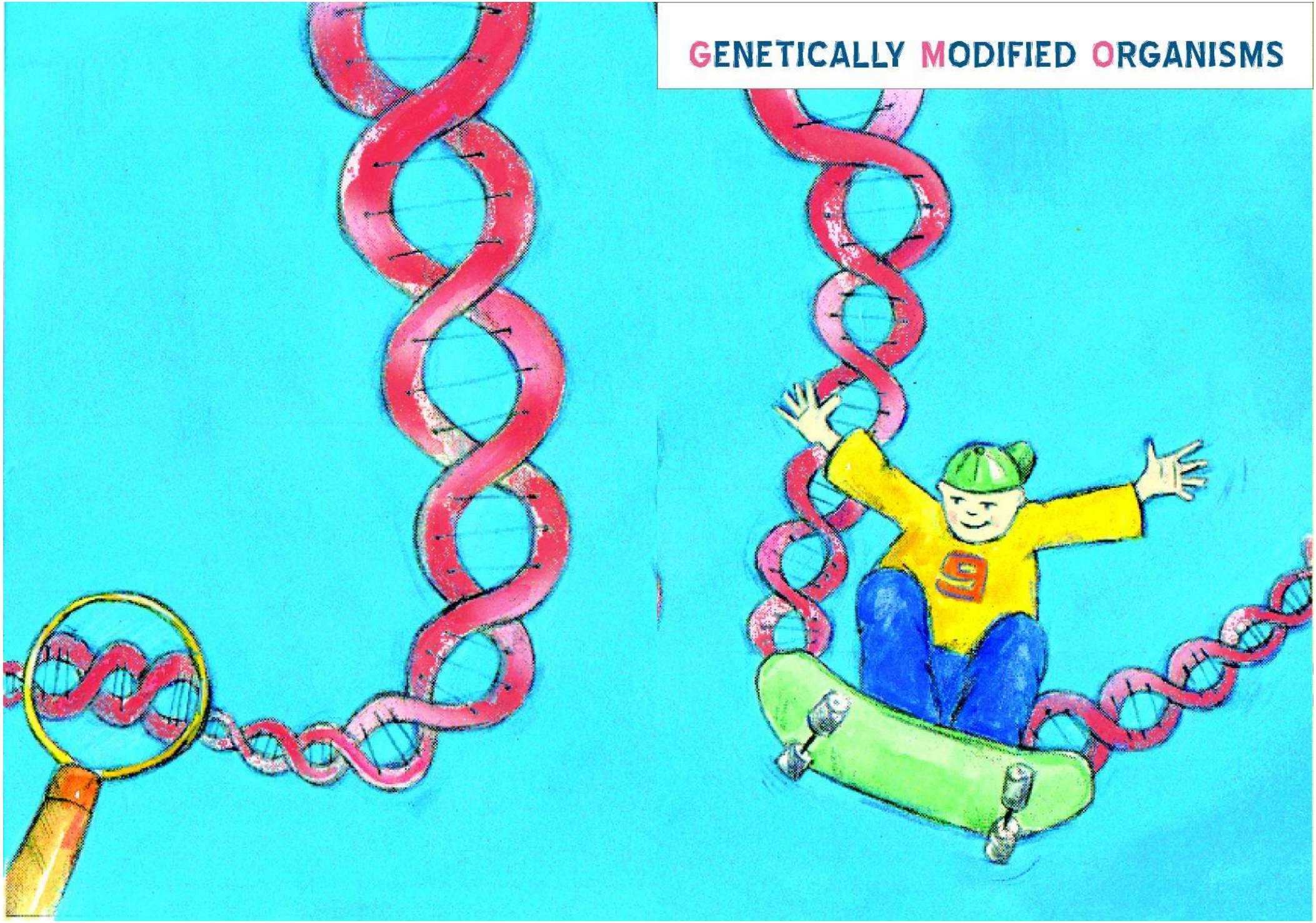
GENETICALLY MODIFIED ORGANISMS



PUBLISHED BY:

UNEP - GEF
United Nations Enviroment Program ▪ Global Enviroment Facilities

NIB ▪ National Institut for Biology

MESPE ▪ Ministry of the Environment, Spatial Planning and Energy

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Printed by: TISKARNA PETRIČ

Paper: Euroart mat

Edition: 1500

English translation: Alan McConnell-Duff November 2003

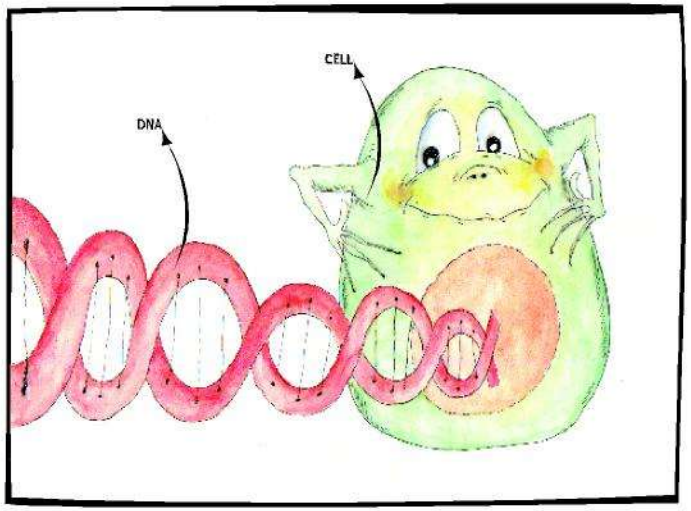
CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

631.524(02.053.2)

OZIMEK, Boštjan
Genetically modified organisms / [authors Boštjan Ozimek, Darja Stanič Racman ; illustrated by Tone Cencič ; English translation Alan McConne-Duff]. - Geneva : United Nations Environment Program, Global Environment Facilities ; Ljubljana : National Institut of Biology : Ministry of the Environment, Spatial Planning and Energy, 2003

ISBN 961-6392-19-0 (Ministry of the Environment, Spatial Planning and Energy)
1. Gl. stv. nasl. 2. Stanič Racman, Darja

GMO GENETICALLY MODIFIED ORGANISMS



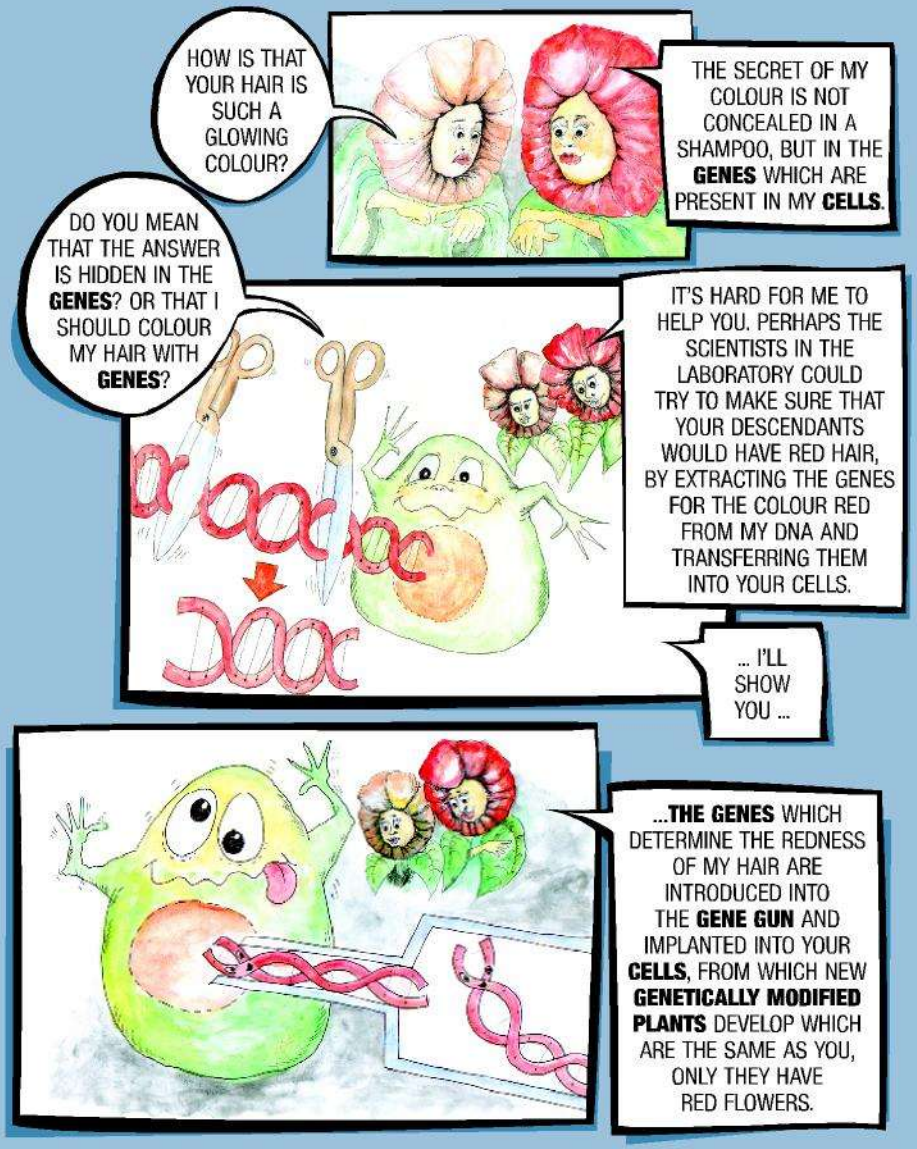
A GMO is an organism in which the DNA is modified by the methods of modern genetic engineering. This means that when we add a gene to an organism, remove one or alter it, we are also modifying the characteristic which this gene determines.

A CELL is a basic stuctural unit of all plants and animals. Each cell retains a record in DNA for all properties of the organism.

DNA The record of all properties of the organism is contained in the DNA molecule, which has the charateristic double helix structure.

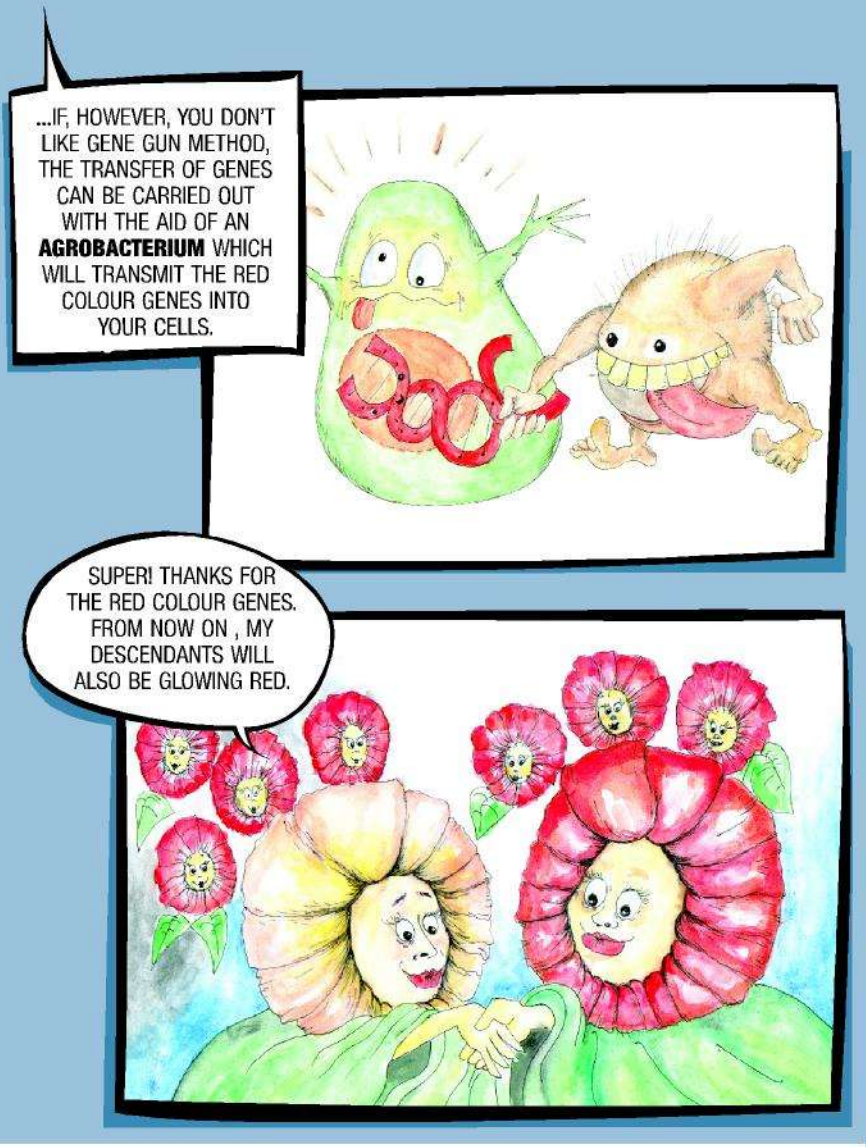
GENE the genes are the parts of the DNA which contain the instructions for the structuring and functioning of the organism.

HOW DO WE MAKE A GMO?



GLOSSARY OF LESS KNOWN EXPRESSIONS

GENE GUN	Using the gene gun we insert DNA into the cells in such a way that the DNA is affixed to tiny metal parts and fired with great force into the cells.

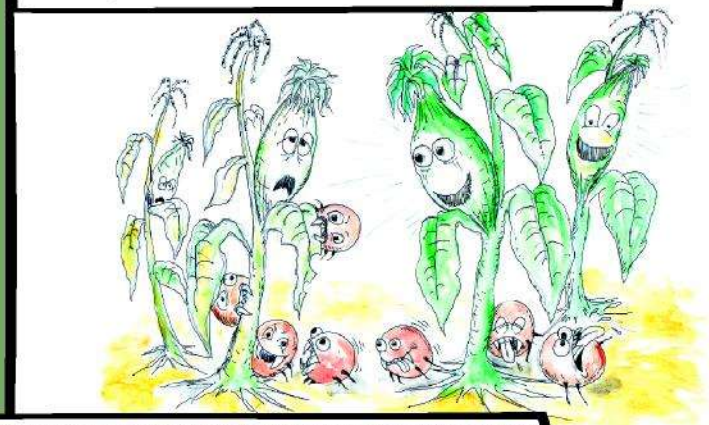


GLOSSARY OF LESS KNOWN EXPRESSIONS

GENETICALLY MODIFIED PLANT	Genetically modified plants are obtained by first extracting a cell from the mother plant and modifying a specific gene. Then from this cell a new plant is grown which has the modified property which is determined by that gene.
AGROBACTERIUM	is bacterium which, in nature, during the infection of plants transfers part of its genes into the plants' DNA. In preparing GMO plants this bacterial capacity is used and certain bacterial genes are exchanged for those which one wishes to introduce into the plant. Then, of course, the agrobacterium preforms the genetic transfer instead of us.

POSSIBLE BENEFITS

WHEN GENES ARE MODIFIED - PESTS ARE PETRIFIED.



Genetically modified plants are more pest-resistant, which indicates that fewer **pesticides** may be needed in the fields.

FROM SOIL INTO THE PETALS,
MORE ENVIRONMENT FRENDLY METALS.

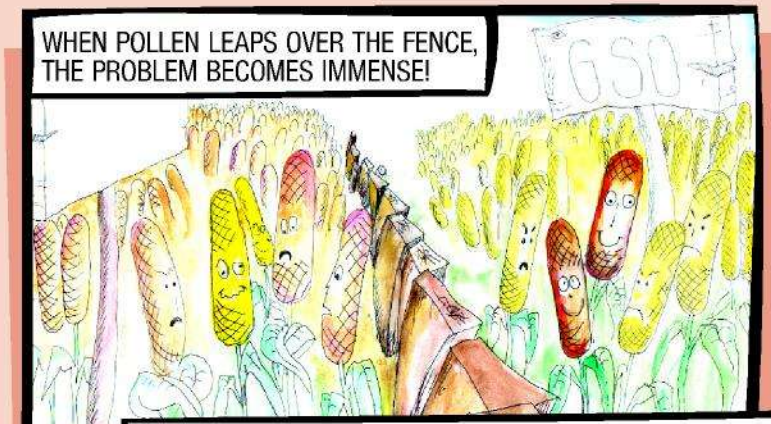
A genetically modified poplar has an increased capacity for extracting and processing **heavy metals** into forms which are less harmful to the environment.

GLOSSARY OF LESS KNOWN EXPRESSIONS

PESTICIDES	are substances for destroying certain harmful organisms. They are used chiefly for destroying plant pests and weeds.
HEAVY METALS	These include coloured metals (e.g. copper, lead, mercury, cadium, etc.), black metals (iron ores) and precious metals (platinum, gold and silver).

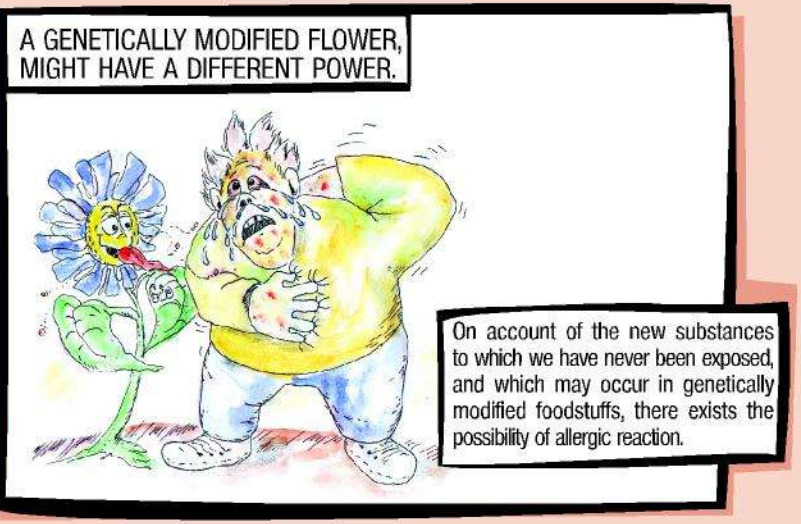
POSSIBLE RISKS

WHEN POLLEN LEAPS OVER THE FENCE,
THE PROBLEM BECOMES IMMENSE!



The possibility exists that **the pollen** of genetically modified plants may be transferred to genetically unmodified plants of the same species. In non-GMO produce, the content of genetically modified organisms is restricted by legislation, and consequently the processing of GMO and non-GMO produce in the same area is problematic.

A GENETICALLY MODIFIED FLOWER,
MIGHT HAVE A DIFFERENT POWER.

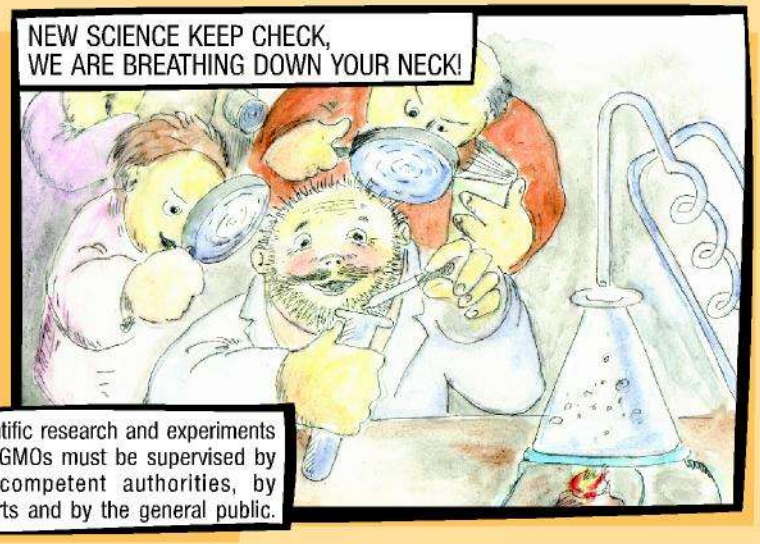


On account of the new substances to which we have never been exposed, and which may occur in genetically modified foodstuffs, there exists the possibility of allergic reaction.

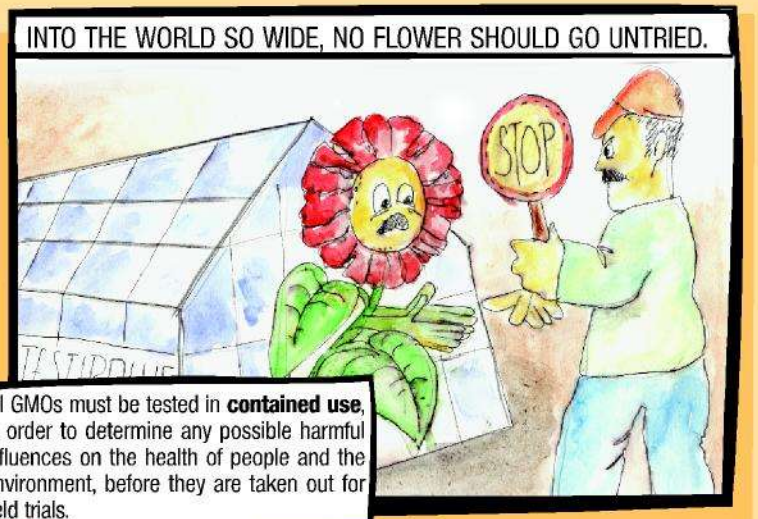
GLOSSARY OF LESS KNOWN EXPRESSIONS

POLLEN	or flower dust contains male sex cells which are mostly transported by wind and by insects to other plants of the same species, and these then fertillize the female sex cells.

GRADUAL APPROACH, CONTROL AND SUPERVISION OVER THE USE OF GMOs



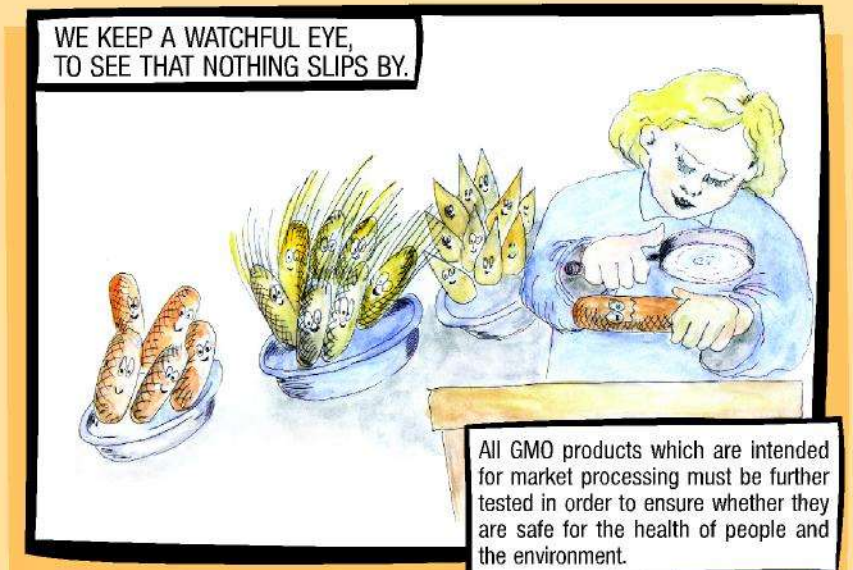
Scientific research and experiments with GMOs must be supervised by the competent authorities, by experts and by the general public.



All GMOs must be tested in **contained use**, in order to determine any possible harmful influences on the health of people and the environment, before they are taken out for field trials.

GLOSSARY OF LESS KNOWN EXPRESSIONS

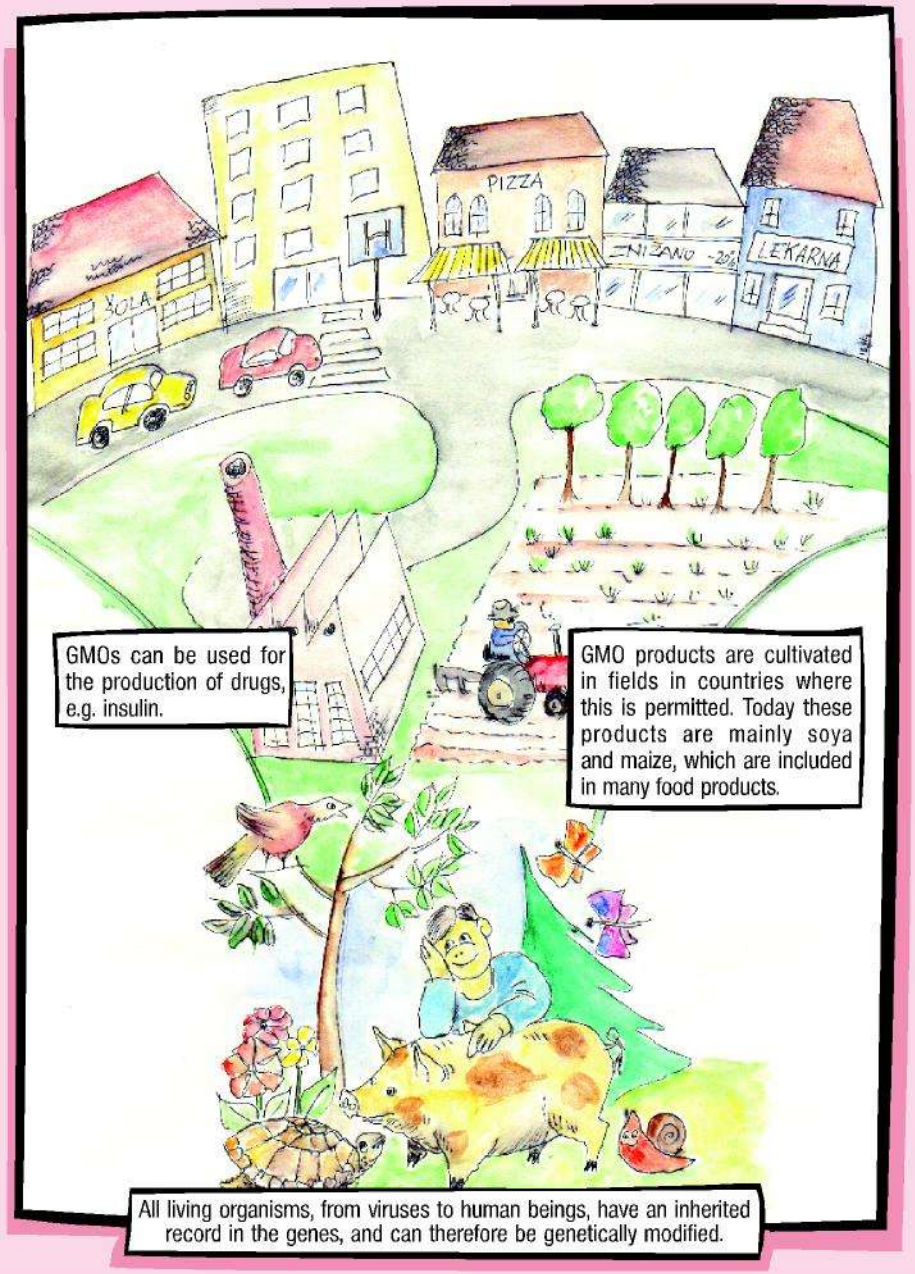
CONTAINED USE — is a space in which GMO research studies and tests are carried out , and which is equipped in such a way as to prevent the spreading of GMOs into the environment (e.g. laboratories, greenhouses, etc.).



All GMO products which are intended for market processing must be further tested in order to ensure whether they are safe for the health of people and the environment.

The legislation demands that articles containing **GMOs** must be appropriately labelled.

GMOs IN EVERY DAY LIFE



DID YOU KNOW...

- that genes are not toxic and that they occur in all food of plant and animal origin,
- that human beings have approximately 30000 genes,
- that the first commercial genetically modified plant was tobacco, which was cultivated in China (1992),
- that in 2002, worldwide, there were already approximately 59 million hectares of fields on which genetically modified crops were being produced,
- that in 2002 genetically modified crops were being cultivated by 5.5 to 6 million farmers in 16 countries,
- that Argentina, after the USA, is second largest producer of genetically modified field crops,
- that in the overall world production of soya 51% is genetically modified, 9% of the maize, and 20% of the cootton,
- that the majority of Europeans would not buy genetically modified food even if it was cheaper,
- that the majority of Europeans support the development of genetic technology for medical purposes,
- that the most of the insulin in the world is obtained with the aid of genetically modified organisms,
- that the Euro banknotes are also printed on gentically modified cootton.

Source:
http://www.isaaa.org , C. James, ISAAA briefs No. 27, 2003, Europeans and Biotechnology in 2002, Eurobarometer 58.0, The Times (London), Januar 01, 2003 / Mark Henderson

ADDITIONAL INFORMATION IS AVAILABLE ON SLOVENIAN BOISAFETY CLEARING HOUSE: WWW.BCH.BF.UNI-LJ.SI